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(71) Applicant (for all designated States except US): **SUN-FISH STUDIO, INC.** [US/US]; 5364 Shoreview Avenue, Minneapolis, MN 55417 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HAYES, Nathan,**

T. [US/US]; 5364 Shoreview Avenue, Minneapolis, MN 55417 (US). **SCHMIDT, David, R.** [US/US]; 9329 Oliver Avenue North, Brooklyn Park, MN 55444 (US).

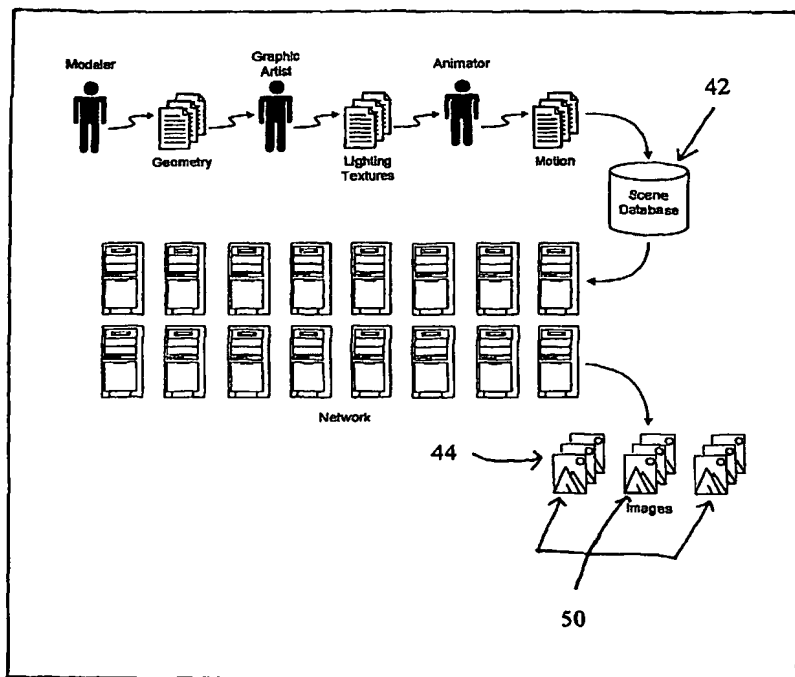
(74) Agent: **STEMPKOVSKI, JR., Richard, C.**; Nawrocki, Rooney & Sivertson, P.A., Suite 401, Broadway Place East, 3433 Broadway Street Northeast, Minneapolis, MN 55413 (US).

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[Continued on next page]

(54) Title: **VISIBLE SURFACE DETERMINATION SYSTEM & METHODOLOGY IN COMPUTER GRAPHICS USING INTERVAL ANALYSIS**



(57) Abstract: A system (40) is provided for visible surface determination in furtherance of photorealistic rendering in a computer graphics environment. The system includes a scene database (42) and a processor, visual characteristics of objects of an image frame (44) of a scene of the scene database (42) are delimited as geometric primitive. The processor, for executing an interval analysis, to a user degree of certainty, accurately and deterministically ascertains a visible solution set of an area not exceeding a pixel dimension for a pixel of an array of pixels (50) that form said image frame (44).

WO 2004/046881 A3



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**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations* AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM,

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